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Eyetracking and Neuromeasurement Tools for Decision Making

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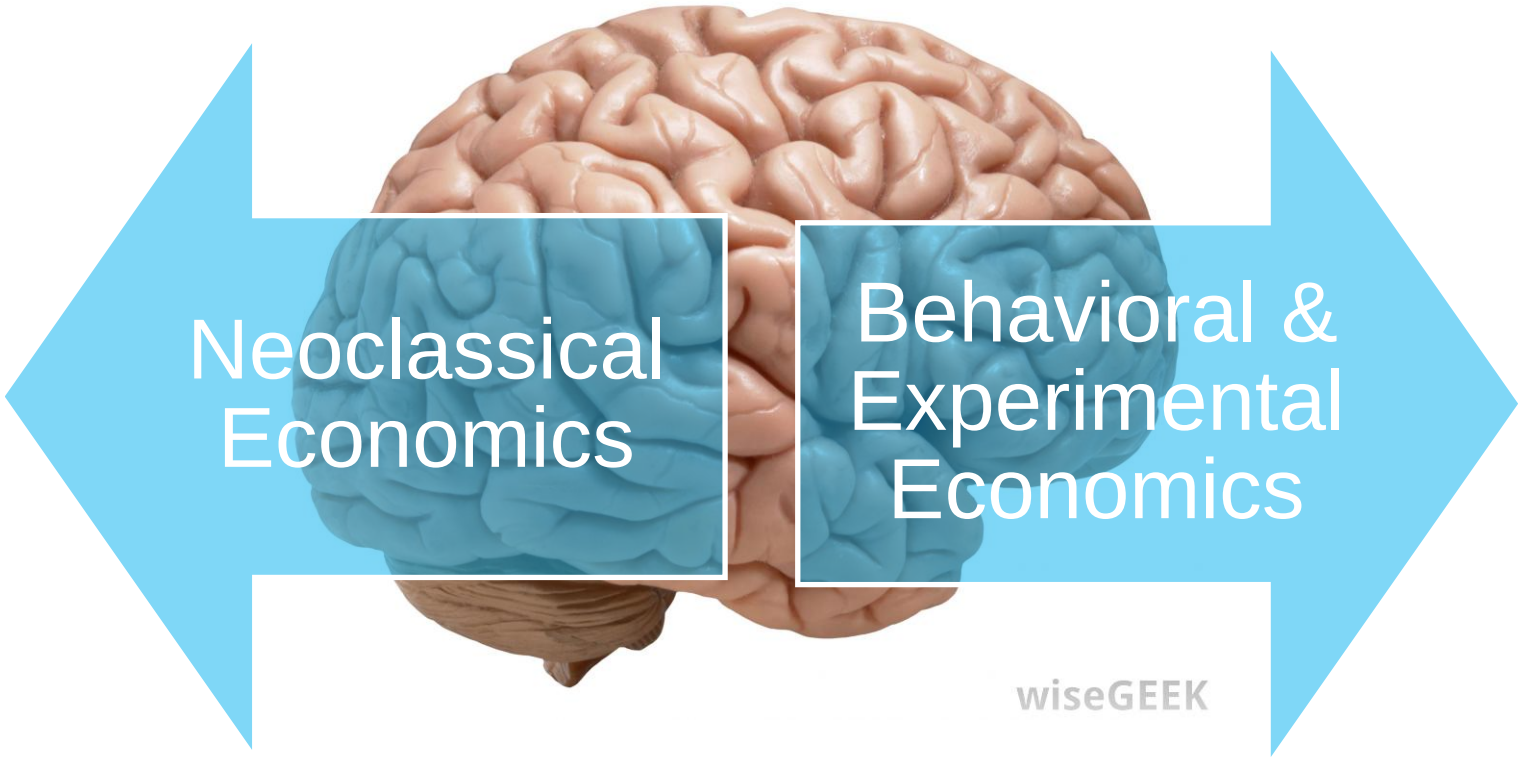
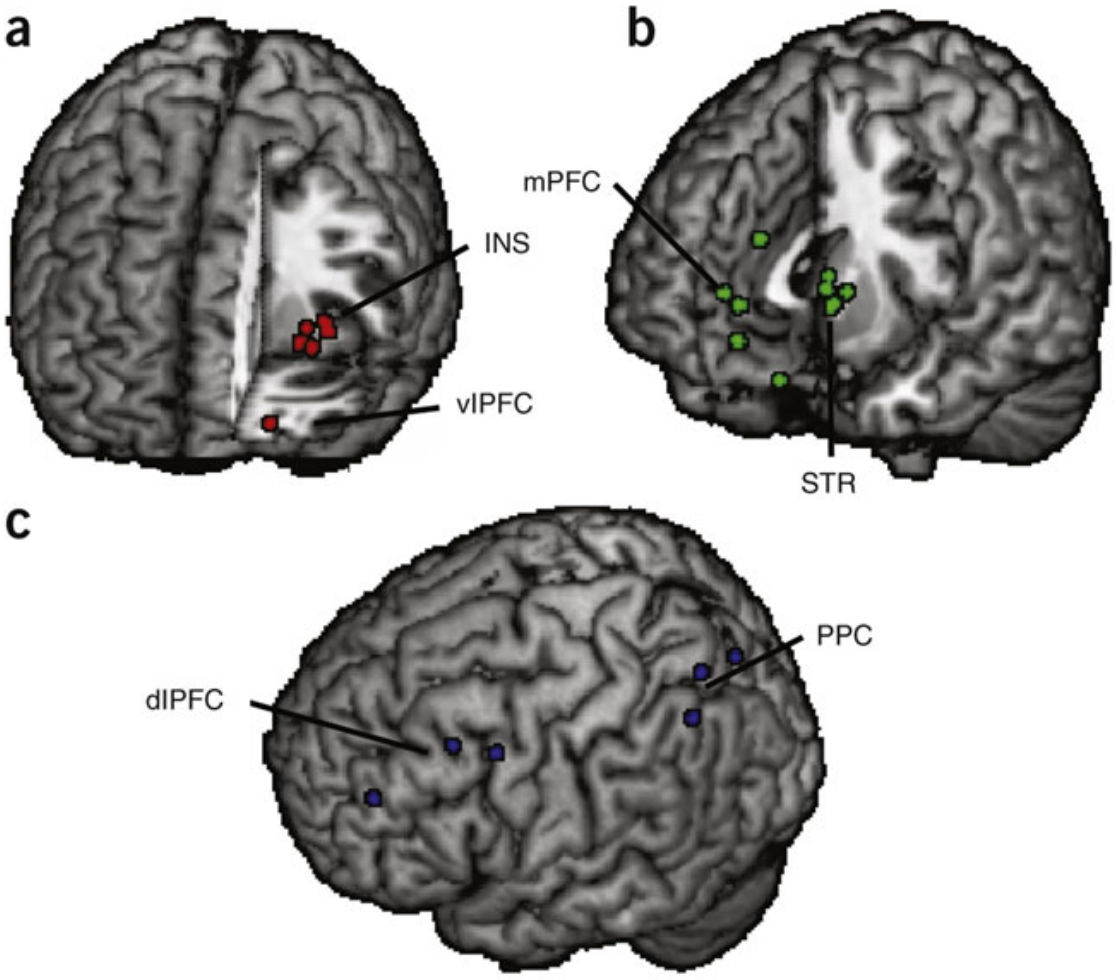
Outline

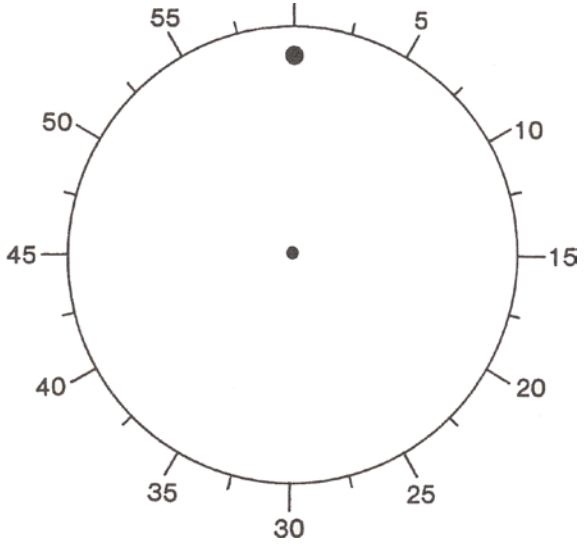
- Introduction
- Decision Making and the Brain
- The TAMU Human Behavior Lab
- Summary

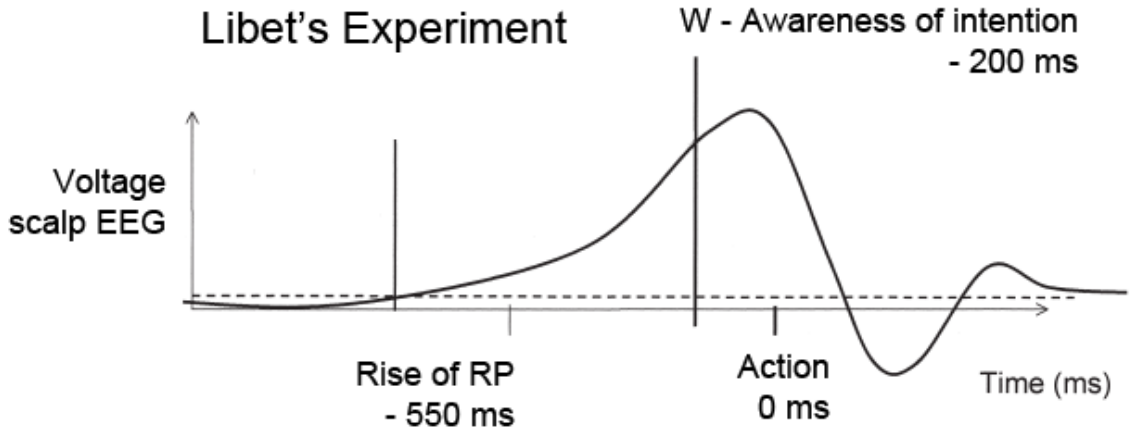

Neoclassical Economics
Behavioral & Experimental Economics
wiseGEEK

Decision Making and the Brain



When Do We Decide?



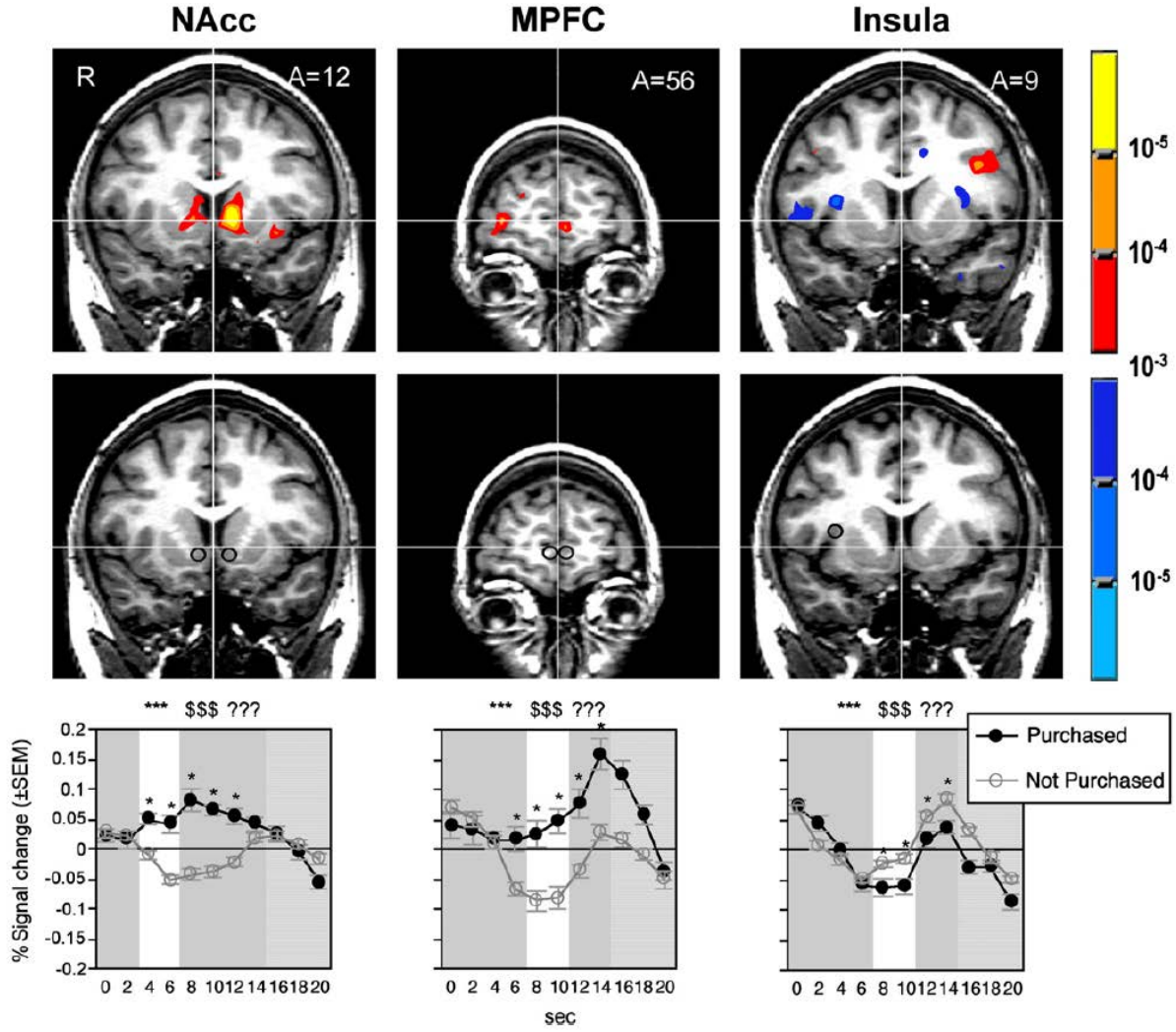


Libet, Wright and Gleason (1982)

Neural Predictors of Purchase

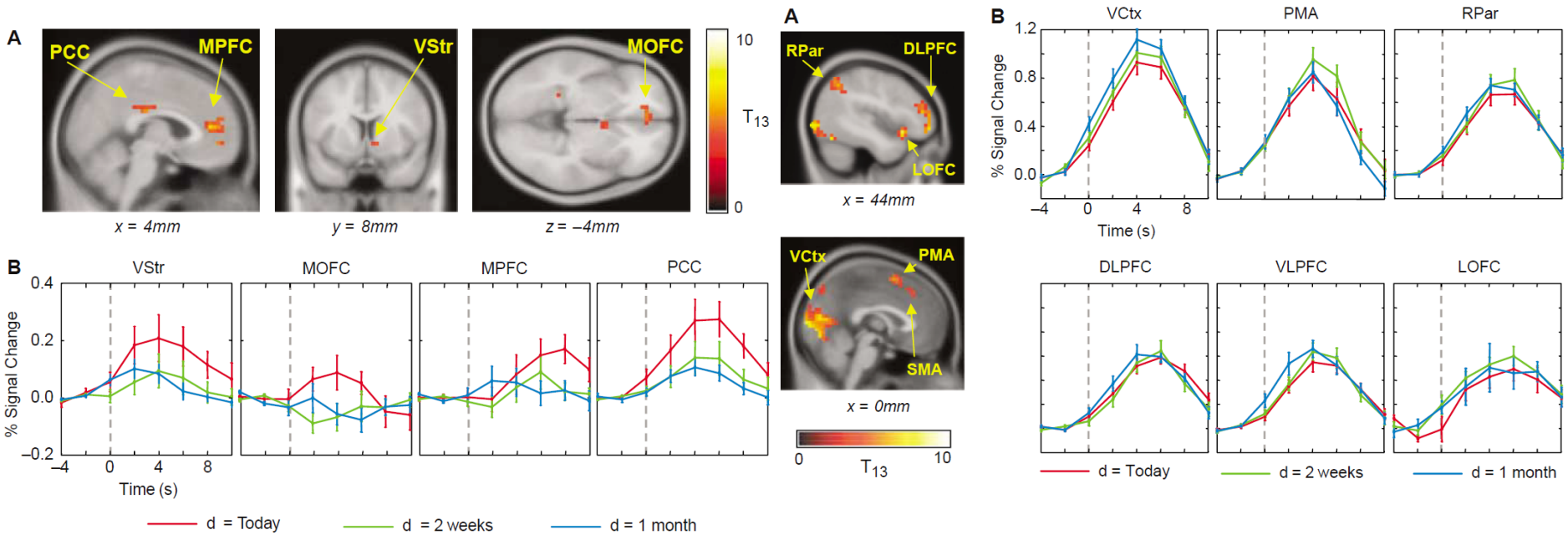
Knutson et al. (2007)

Neural Predictors of Purchase



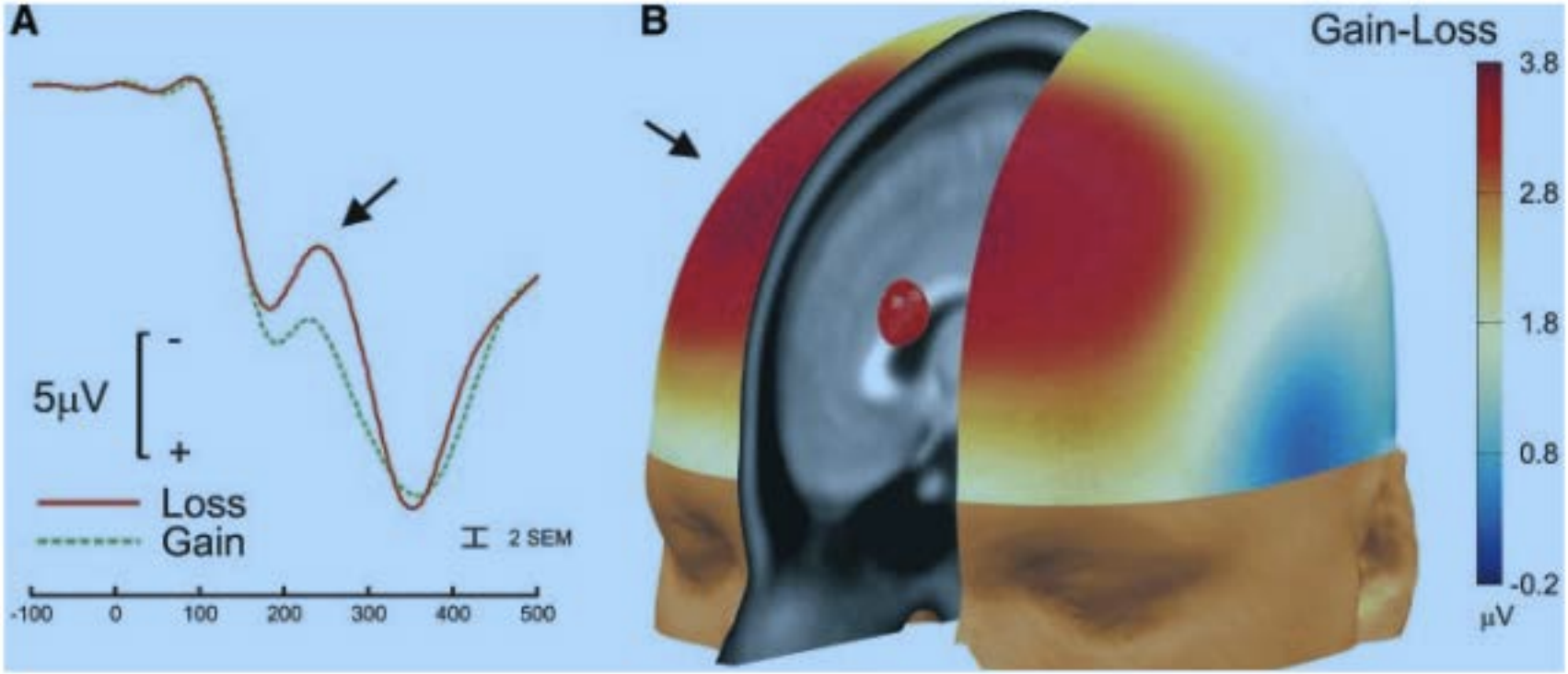
Knutson et al. (2007)

Immediate Vs. Delayed Rewards



McClure et al. (2004)

Monetary Gains and Losses



Gehring and Willoughby (2002)

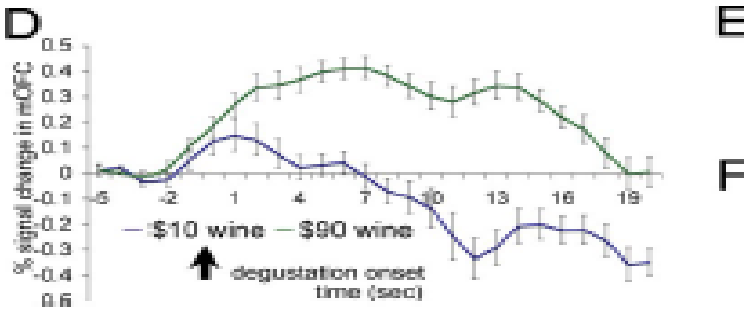
Branding and Prestige

- Preferential treatment (even financially) of branded vs non-branded shirts (Nelissen and Meijers 2011).
- Theoretical models looks at products of similar quality and functionality and evaluate WTP
- Experimental design problem: quality is highly correlated with price (i.e. higher quality products are usually more expensive).

Branding and Prestige

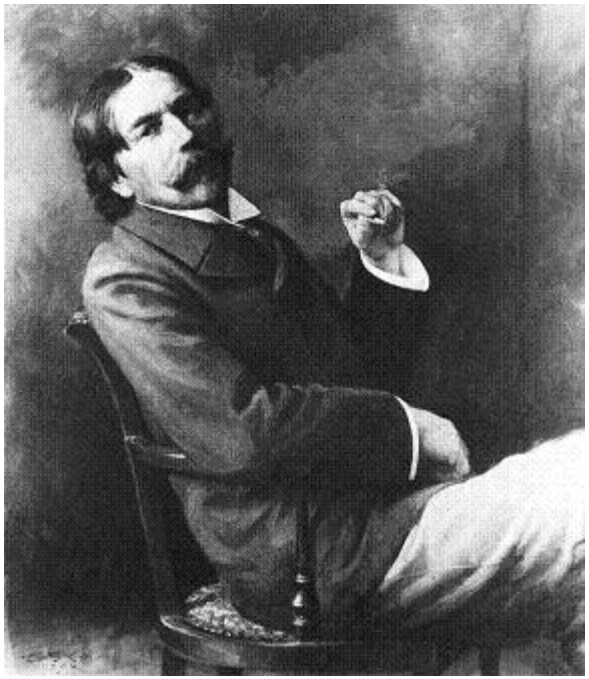
$10

$90



Plassman et al. (2008)

Prestige



Thorstein Veblen (1857-1929)

"In order to gain and hold esteem of men it is *not sufficient merely to posses wealth or power.* The wealth or power **must be put in evidence**, for esteem is only awarded on evidence. "

"Conspicuous consumption"

Conspicuous consumption

Invidious comparison

Pecuniary emulation

Conspicuous consumption of non-luxury goods (Dubois, Rucker, and Galisky 2012)

Is it possible?

“Good resolutions are useless attempts to interfere with scientific laws” – Oscar Wilde.

Poverty and cognitive function

Poverty and cognitive function

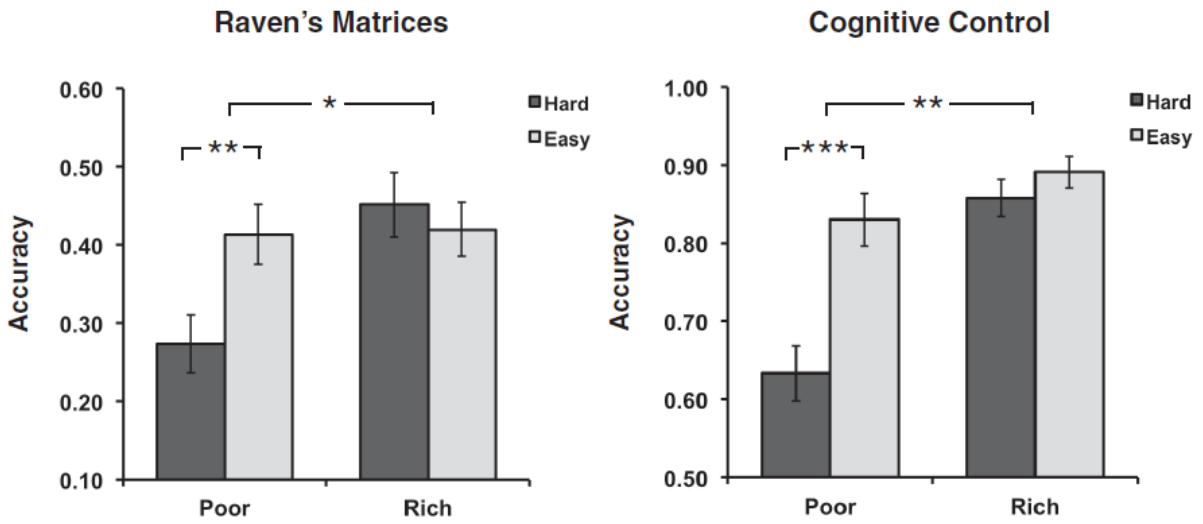
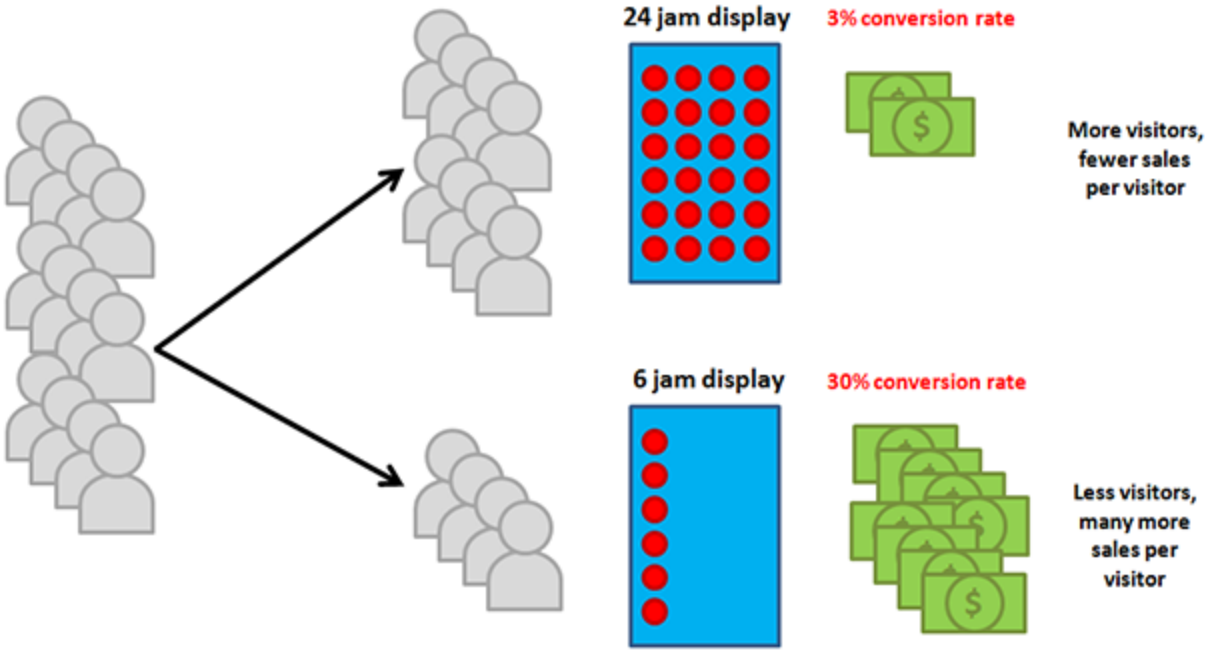


Fig. 1. Accuracy on the Raven's matrices and the cognitive control tasks in the hard and easy conditions, for the poor and the rich participants in experiment 1. (**Left**) Performance on the Raven's Matrices task. (**Right**) Performance on the cognitive control task. Error bars reflect ±1 SEM. Top horizontal bars show two-way interaction (poor versus rich × hard versus easy). $*P < 0.05$, $**P < 0.01$, $***P < 0.001$

Mani et al. (2013)

Choice overload



(Iyengar and Lepper 2000)

Commitment devices

Homer's Odyssey

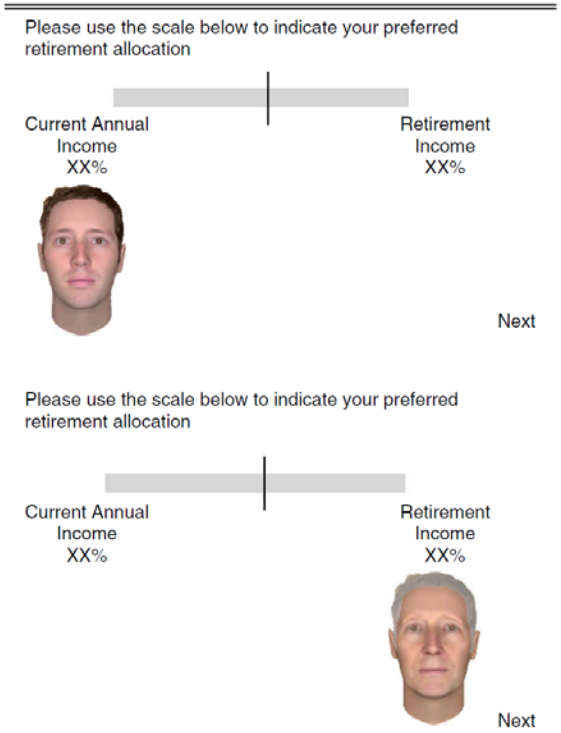
Commitment devices

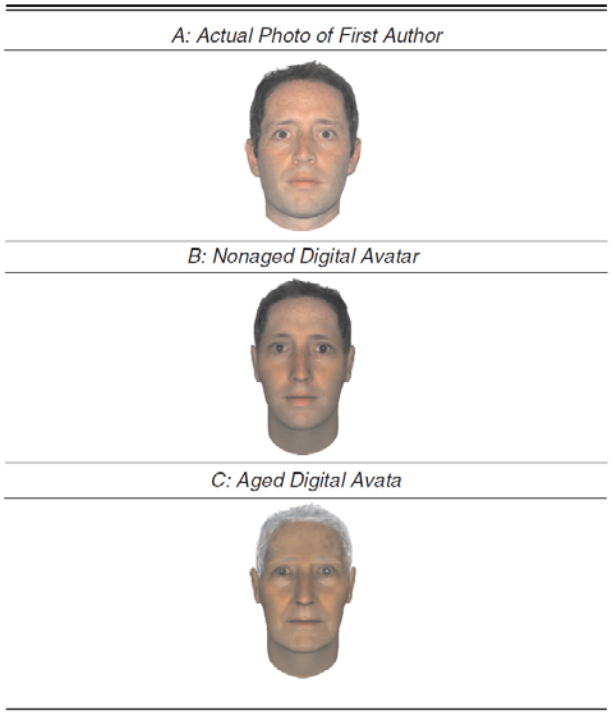
Commitment devices

Episodic prospection

Episodic prospection

Episodic prospection





Hershfield et al. 2011

Episodic prospection

The TAMU Agricultural Economics **Human Behavior Laboratory**

Our Toolkit

Our Toolkit

EEG

B-Alert X10

Cognitive activation

GSR

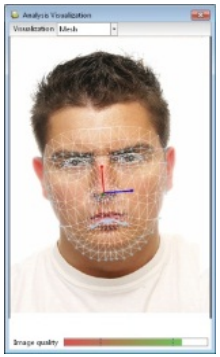
Emotional impact

Eye tracking

Attention & visual behavior

Arousal (pupil)

Face reading



Emotional impact

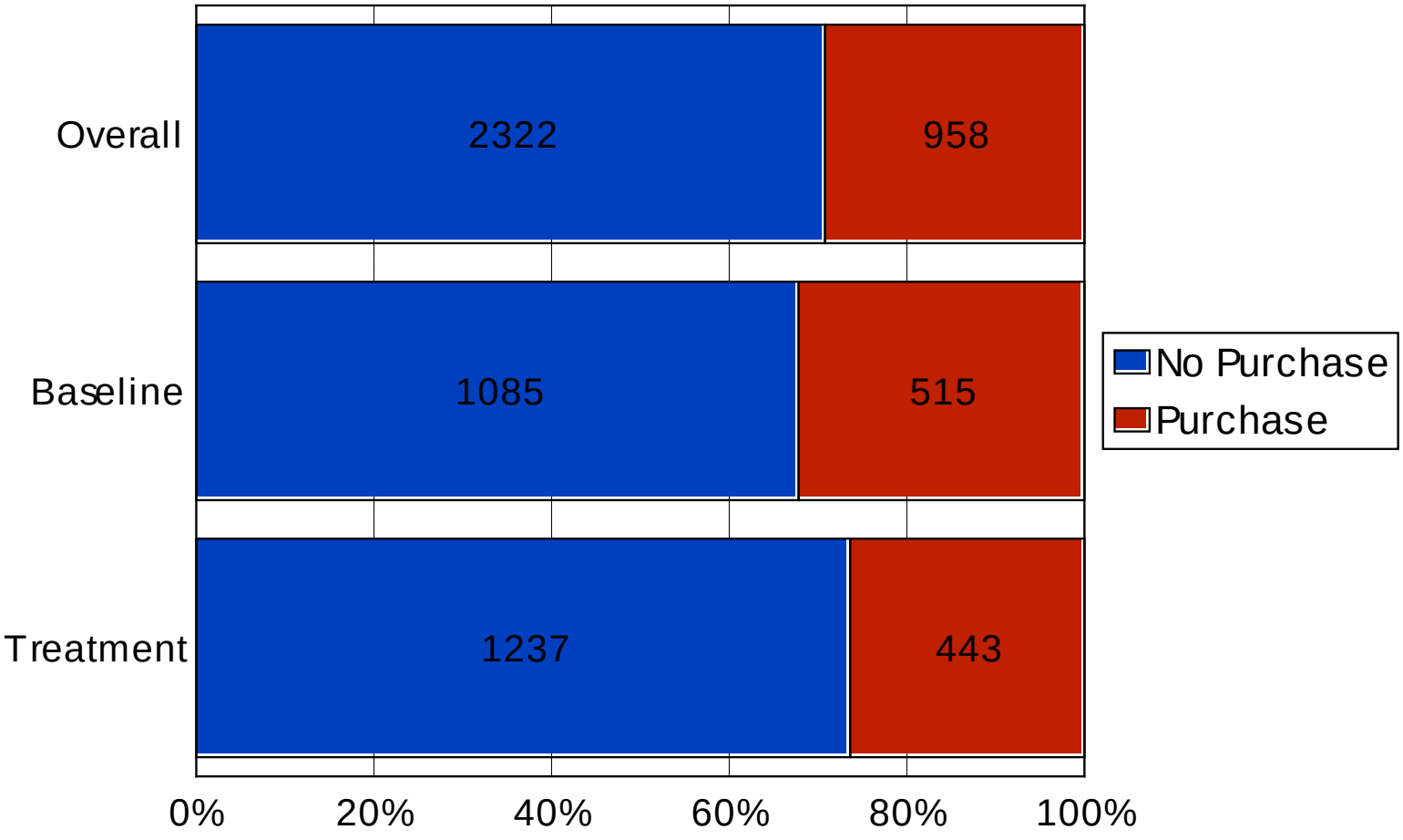
Emotional valence

EEG

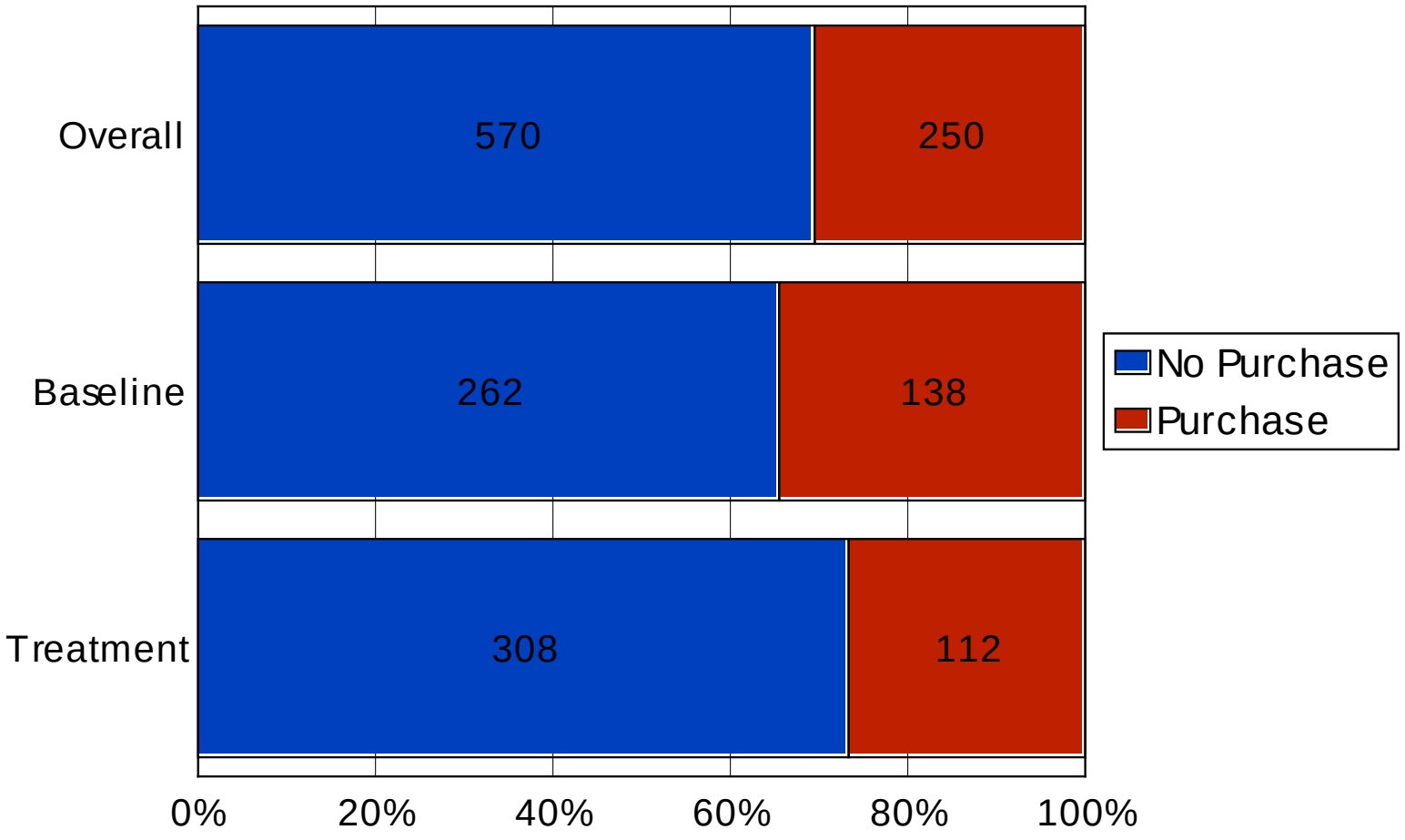
- Can brain activation predict purchases?

- How does self-restraint (resource depletion) affect the purchasing decision:
  - 1 Knowledge ↓
  - 2 Skill - n.c.
  - 3 Strength model ↑

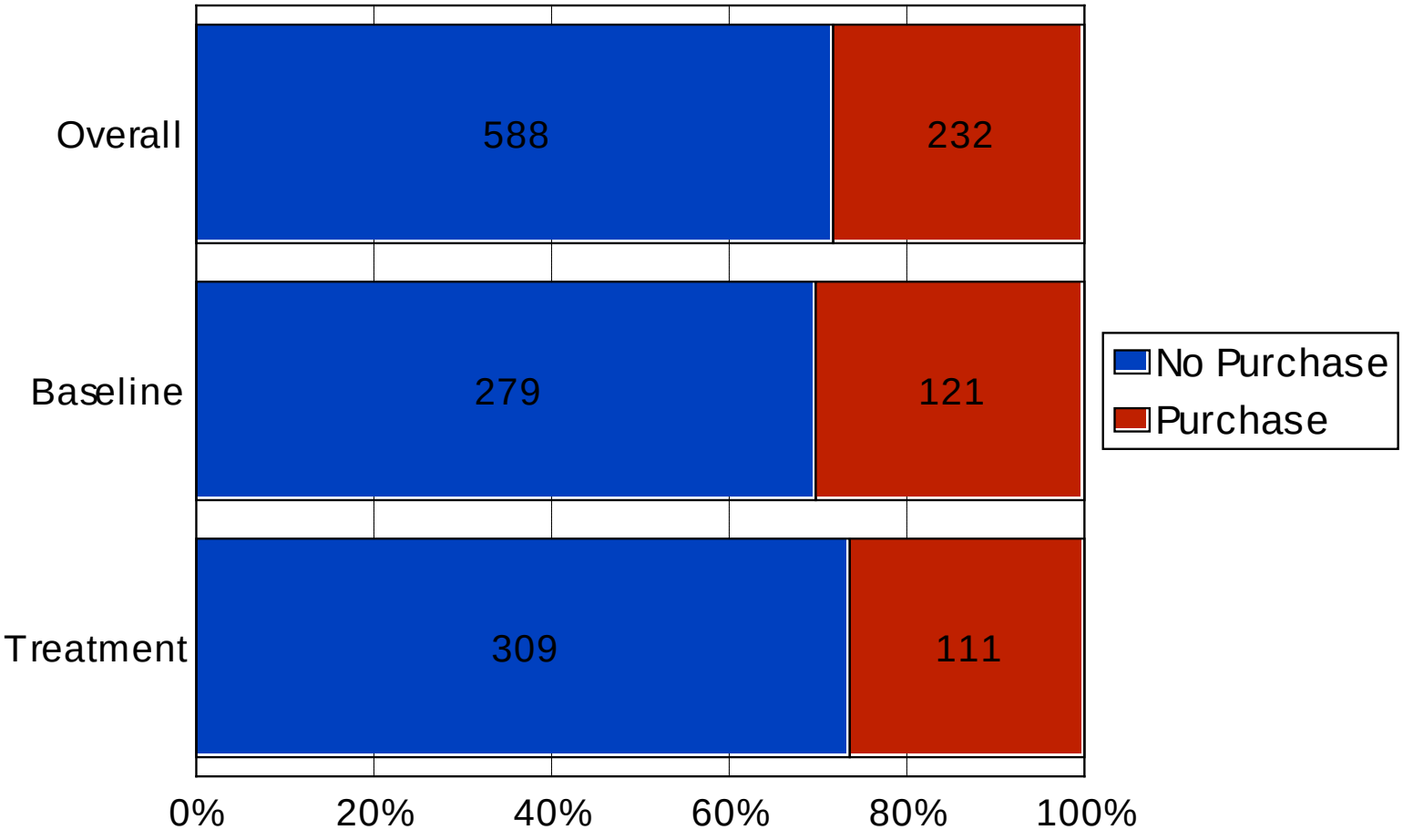
Overall


Overall
Baseline
Treatment
2322
958
1085
515
1237
443
No Purchase
Purchase
0%
20%
40%
60%
80%
100%

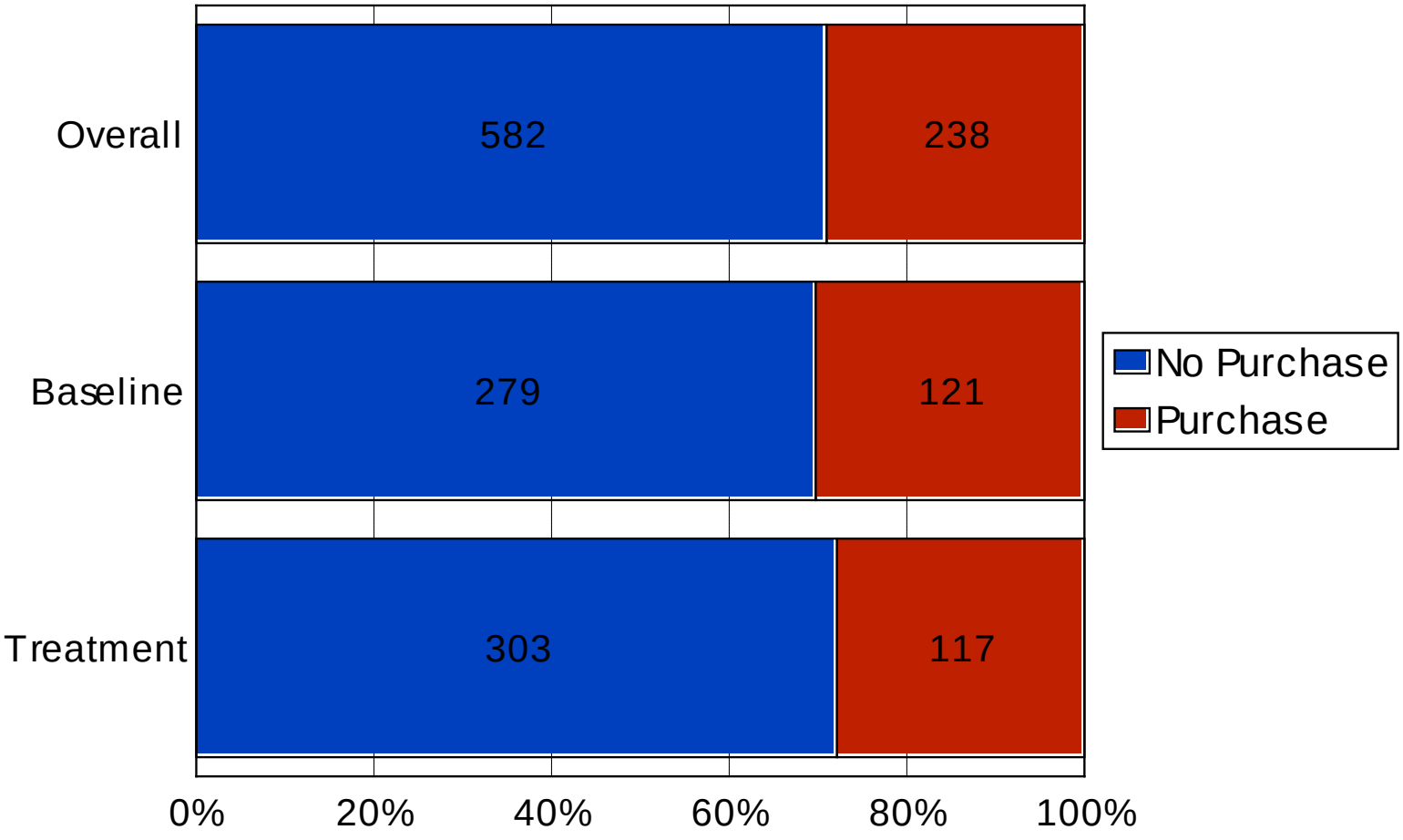
Food


Overall
Baseline
Treatment
570
250
262
138
308
112
No Purchase
Purchase
0%
20%
40%
60%
80%
100%

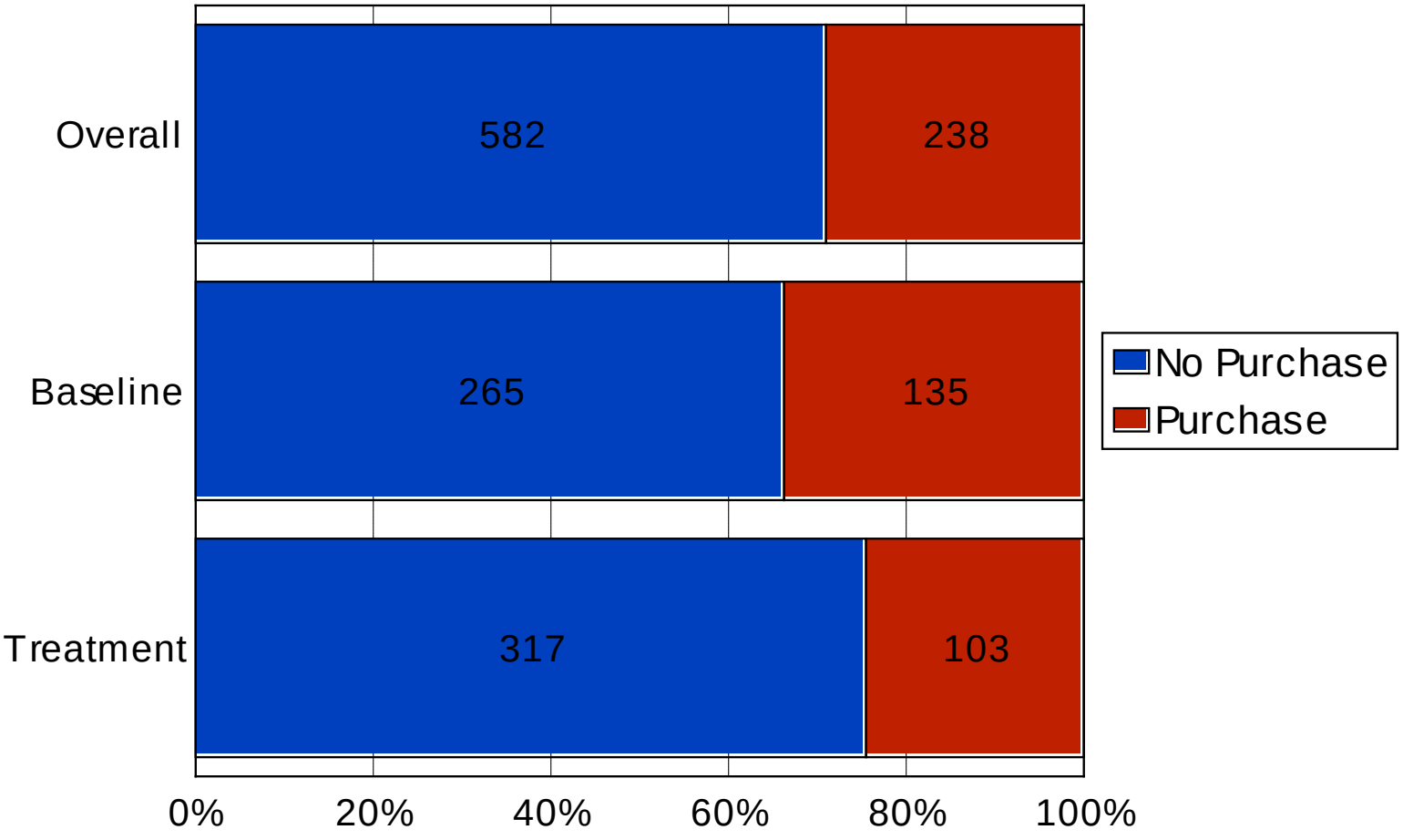
Personal Care



Office Supplies



Home products



Summary

- Consumer choices are based on conscious and unconscious factors
- Often times consumers are not “rational” carefully weighing the costs and benefits of each choice
- Instead they are highly influenced by “emotions”
- Combine traditional methods with biometric data to improve our understanding of the consumer

Questions

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